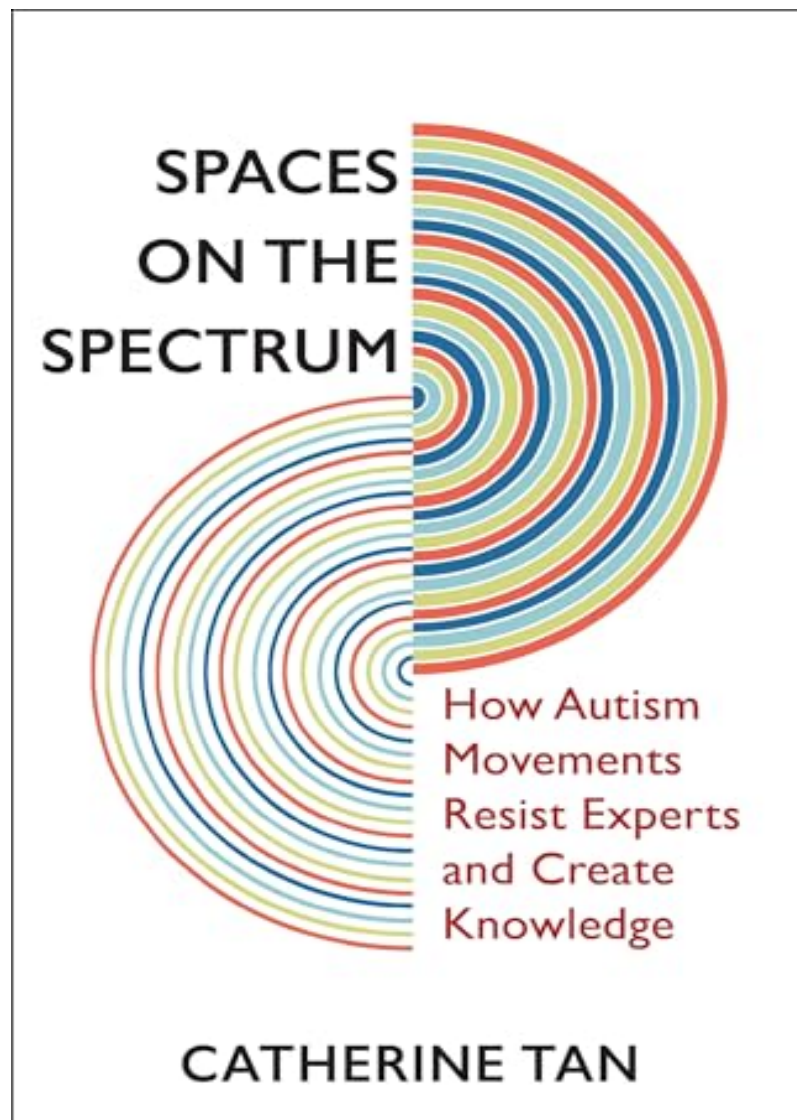


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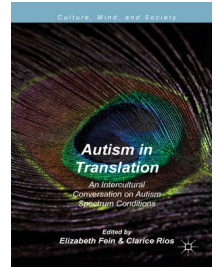


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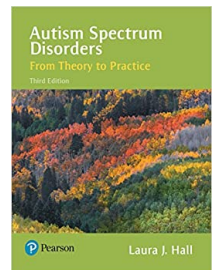
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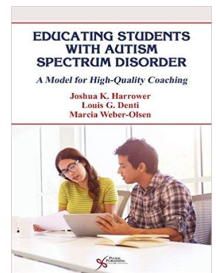
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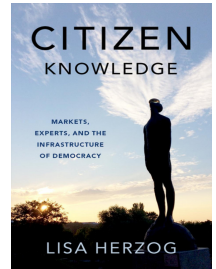
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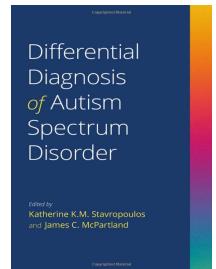
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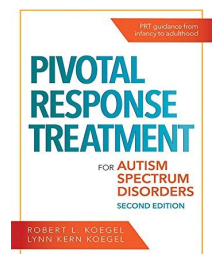
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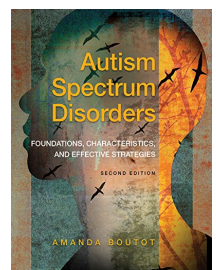
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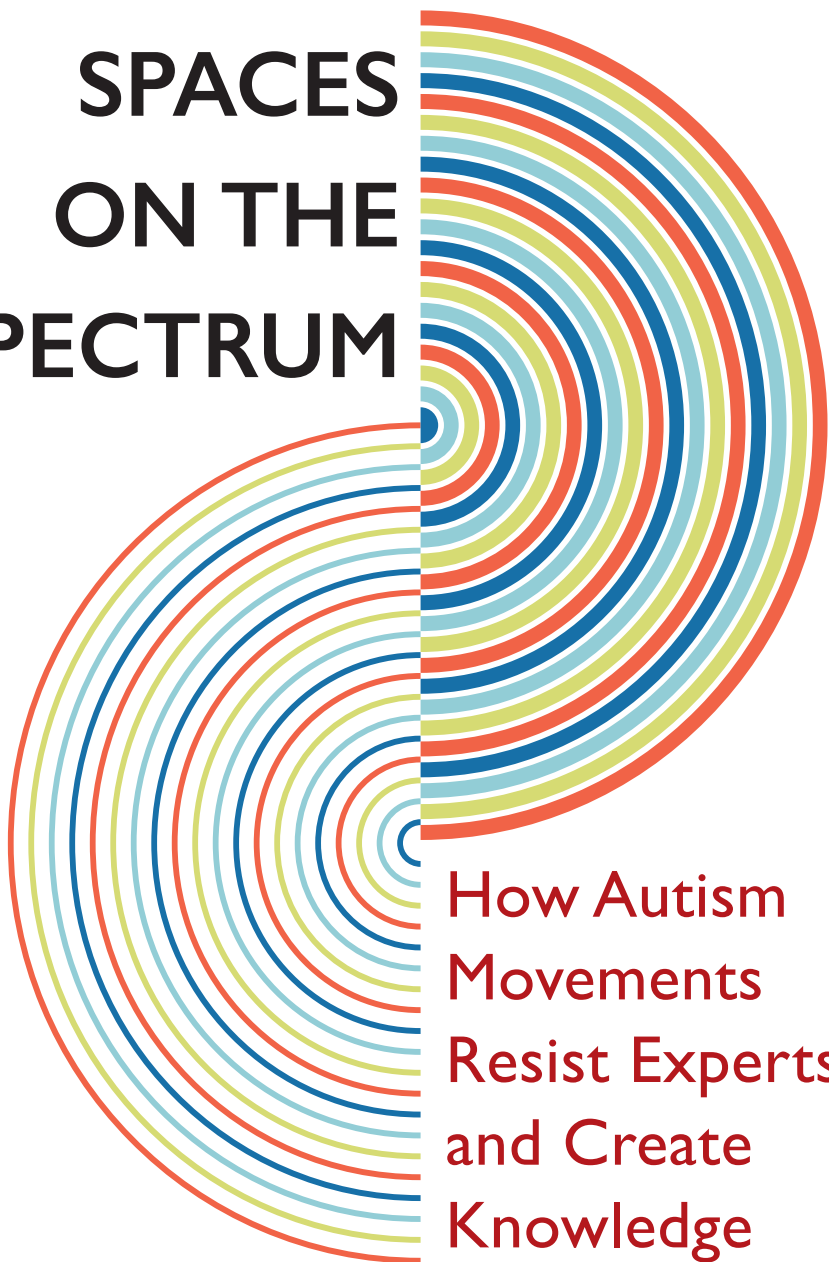
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# SPACES ON THE SPECTRUM



How Autism  
Movements  
Resist Experts  
and Create  
Knowledge

CATHERINE TAN

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RESIST EXPERTS AND CREATE  
KNOWLEDGE**

**CATHERINE TAN**

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*For my parents,  
Mão Tân and Bích Vân Đỗ*





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## PREFACE AND POSITION

I answered a Craigslist ad online in 2006. Stories that start this way usually have grisly endings; not in this case fortunately. The ad was posted by a couple in their early forties—Danuta and Allan—in urgent need of a babysitter for their autistic six-year-old son, Mickey (these are all pseudonyms). I was in my junior year of college and needed a flexible, part-time job. I met them at their stylish home located in Hillcrest, one of the most fashionable neighborhoods in San Diego at the time. It was decorated with French country decor. Danuta proudly shared that the light fixtures were alabaster, the paint on the walls was by Ralph Lauren, and the end table with floral inlay was an early-twentieth-century replication of a nineteenth-century design. They needed someone to start immediately because in a few days they were going to go to Poland. At that time, everything I knew about autism came from the movie *Rainman* and a *Time Magazine* article from 2002. But they judged me to be a nice and responsible enough stranger to trust with their only child, so I was promptly hired to stay with Mickey at night after the daytime nanny went home. To keep their minds at ease, I think they had a camera hidden somewhere in the house (I found the device's packaging a couple of weeks later). After

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Danuta and Allan returned from their trip, I stayed on and continued babysitting Mickey for another two years, ten to fifteen hours each week.

Mickey had bright eyes and moppy brown hair. Allan affectionately called him Squiggles. Mickey would laugh uncontrollably when I pulled him around the spacious house on a blanket or swung him around by his arms in the backyard. He rarely cried or showed signs of discontent—except briefly once when I was pushing him on the swing and he flew off (he was fine). He had a sophisticated palate compared to the typical American child who only eats beige things. Mickey required a lot of support. I remember him cycling through different behavioral therapists; one of them rewarded him with gummy bears and another therapist pressed a clicker whenever he did something correctly. Danuta and Allan laughed uneasily, saying it was too much like animal training. Mickey did not have any verbal language and possessed limited sign language. He avoided eye contact and stared into the distance. If left alone, he could spin the wheels of his toy cars and the bobbles of his rattle for hours, rhythmically cooing to himself. Sometimes he would strain his face, furrow his brows, and shake his toys in frustration. When we lounged around with nothing to do, I sometimes sang to him Belle and Sebastian’s “Judy and the Dream of Horses.” I took him everywhere—diners, parks, the zoo, the annual pride parade, and my field site when I was working on my senior thesis. He was easy to manage, in the sense that he did not wander off or self-injure, but I had trouble interpreting the subtleties of his communication. I just knew he enjoyed eating and being swung around.

I also spent a lot of time with Danuta. She worked part-time as a piano teacher and was often at home doing chores and gardening as I watched Mickey. Danuta was always affectionate with him even though he rarely reciprocated, and she was patient



even when he yanked fistfuls of her hair. Over time, Danuta and I became friends, socializing outside of my work hours. She wistfully said that Mickey verbally speaks to her when he appears in her dreams. She would get gloomy when thinking about how people felt sorry for her and her son. She could not help but speculate why Mickey is autistic. One evening, she confessed that before she knew she was pregnant, she went into a jacuzzi—*Could that have been the cause?* Another day, while she was putting away the laundry, she told me that they recently learned that Allan had an aunt who was intellectually disabled, suggesting Mickey's autism might have been inherited. To Danuta and Allan, Mickey represented so many unknowns about the past, present, and future. They worried a lot about what would happen to Mickey when he got older: Who will love him when they die? Later, some of their worries were put slightly at ease with the birth of another baby boy, the future conservator.

Micky was just one child. I never met another autistic child like him. I learned very little about autism, the condition, from working with him actually. However, being part of his and his parents' lives, I learned to appreciate the complicated relationship between autism and the non-autistic world. I cannot speak for Mickey or his experiences, but as his babysitter, I knew what made my job easier and what made it harder. My job felt easier when the people around us were patient and forgiving. My job felt harder when I could sense strangers pitying him. Of course, at the end of the day, I was able to just step away—this was my privilege. I am writing this book as a neurotypical person who was introduced to the world of autism through the kindness of autistic people, parents of autistic children, and practitioners. For years, they welcomed me into their lives and entrusted me with their stories. My intent (and hope) is that this book will honor the time my participants so generously shared.



## ACKNOWLEDGMENTS

I would like to thank the participants of my study for sharing their stories and inviting me into their communities. Without them, there would be no book to write.

I cannot believe it took ten years to go from institutional review board approval to publisher approval. I really hope my next book does not take this long. Anyway, a lot of life happened over the last decade. During this time, so many people have supported me and this project.

Thank you to the team at Columbia University Press for making this book real. I especially want to thank Eric Schwartz for his support, feedback on chapters, and responsiveness—honestly, I do not know anyone who responds to emails as quickly as him. I am also especially thankful to my anonymous readers. Their suggestions and comments have made this book so much stronger and better. Readers, thank you for your time and invaluable insights.

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Thank you, Miranda Waggoner, for your detailed and thoughtful comments on the full book manuscript. I was especially moved by your enthusiasm. Preparing a book for publication is a little scary, but your kind words inspired confidence.

I would have never pursued an academic career in sociology had it not been for the encouragement and advising I received from Christena Turner and Jeff Haydu at the University of California, San Diego, where I completed my bachelor's degree. I took my first sociological methods course with Christena in 2006 and knew then that this is what I wanted to do with my career. Afterward, I completed my senior thesis with Jeff, which allowed me to expand and develop the project I started in Christena's class. Since graduating from the University of California, San Diego in 2008, I get to see Christena and Jeff at least once a year. I feel so deeply fortunate to have the both of them in my life as mentors and friends.

I am thankful to my advisor and mentors at Brandeis University, where I completed my PhD. Peter Conrad, Sara Shostak, David Cunningham, and Laura Miller have each helped me become a stronger and more confident scholar. Peter Conrad, my advisor and dissertation chair, inspired this study after we coauthored a book chapter comparing the online presence of autism advocacy groups. Peter has been a source of inspiration and encouragement. Aside from teaching me how to think like a

sociologist, Peter also modeled a healthy and balanced academic life. I am so honored to have been one of his advisees. From the Qualifying Portfolio to papers for journal submission, I turned to Sara for her sharp insights and critiques. When I could not see the forest for the trees, she was the one who pushed me to ask, “What is this a case of?” Throughout my graduate career, Laura offered constructive though brutal honesty on my work, provided extremely thorough remarks and edits on every piece of writing I sent her, and held me accountable—and for all that, I am so grateful to have had her as a mentor. On a more personal level, I consider Laura a very good friend. She is both wise and fun. I am sure that when this book comes out, we will celebrate over tiki cocktails.

I want to thank Gil Eyal, Thomas Mackie, and Laura Senier for providing opportunities for me to grow as a sociologist. During my master’s program at Columbia, I worked with Gil on a small study that examined an autism-only school; this resulted in my first published paper. I learned so much more about qualitative research from that project than from any methods course. Even though I have not been his student since 2010, Gil has always been so generous with his time and mentorship. He also gave me invaluable feedback on this manuscript at my book workshop. Since our time together at Brandeis, Tom has been both a friend and a role model. Toward the end of my graduate program, Tom brought me on as a research associate to work on the ABCD Project, a collaboration between multiple universities in Boston. That experience taught me how to work within a team and helped hone my academic writing skills. In my last year of graduate school, I got to work with Laura Senier. I eagerly welcomed this opportunity to explore a topic with which I was previously unfamiliar. I also appreciated Laura’s mentorship style, which was full of enthusiasm and humor.

I would like to thank my community at Vassar College. I am so lucky to be part of this vibrant sociology department with John Andrews, Pinar Batur, Light Carruyo, Abby Coplin, Diane Harriford, Seungsook Moon, Leonard Nevarez, Erendira Rueda, and Gina La Fata—thank you for being wonderful, supportive colleagues. I am incredibly appreciative of Chris White, who participated in my book workshop and provided important feedback. Thank you, Marty, for occasionally popping into my office to ask how the book is coming along and cheer me on. Thank you to the dean of faculty, Bill Hoynes, and president, Elizabeth Bradley, for taking an interest in my research and reading my articles when they are published. It means so much to me. Across Vassar's campus, I am so grateful for the friendships I have made so far: Liz Lastra, Laura Haynes, Lee Kennedy-Shaffer, Katelyn Butler, Zach Cofran, Jess Beck, Louis Römer, Johanna Römer, April Beisaw, Jackie Villadsen, Payton Small, Jasmine Syedullah, Justin Patch, Osman Nemli, Anna Gommerstadt, Katie Gemmill, Amy Chin, Gretchen Lieb, Elizabeth Salmon, and so many others. They are not only colleagues but trivia teammates, boardgame opponents, hiking partners, writing buddies, stained glass classmates, and dates to the Raccoon Saloon.

I would like to thank the many other scholars who have supported me and my work over the last several years, including Phil Brown, Linda Blum, and Valerie Leiter.

I have dedicated this book to Mom and Ba. Both my parents, Mão Tân and Bích Vân Đỗ, worked incredibly hard and made many sacrifices to give my sister and me the educational opportunities that they did not have. Everything went into our education. In addition to school, I had private tutors, extra classes, and camps for almost every subject: math, English, French, creative writing, geometry with origami, SAT prep, guitar, piano,

violin, typing, ballet, etc. They wanted me to go into medicine or pharmaceuticals, financially stable and reliable careers—and in a surprising turn, I went into sociology, which does not have any of the qualities that make health care seem so attractive to immigrant parents. It can be a tragedy to lose a child to social science—so, I thank you, Mom and Ba, for your unwavering and unconditional love and trust; for taking interest in my research; and for respecting how I used the opportunities you provided me, even if it was not what you had expected.

To my family, I am so lucky to have your love and support. Carol Tan (sister), Karter Harmon (sibling-in-law), Melissa Matusky (cousin-in-law), and Mark Graney (cousin-in-law) have all generously served as my nonsociologist readers, providing feedback on early drafts of the introduction and book proposal. Thank you to my grandmother, aunts, and uncles who, over the past three decades, have told me they are proud, celebrated my achievements, and showed up to my graduations. They also cared for me when I was a child, taking me to school, feeding me, and on a couple of occasions, volunteering at my kindergarten.

I would like to thank my husband, Josh Tan. Peter Conrad once said that, Josh, being an astronomer, is occupied with life up there and I, as a sociologist, am occupied with life down here. I took that to mean that our relationship is complementary and balanced, but I know that Josh puts in so much more work. Throughout my career, from the very beginning to now, Josh has provided encouragement and patience. This book exists because I am deeply cared for by him. I have more hours in a day than most people because Josh gives his time to me. He brings me coffee every morning, picks up the groceries, cooks dinner, does the laundry, cares for the dog, reads drafts, and the list goes on. It is impossible to fully express how much I appreciate everything

he does each day to support my ambitions. My successes are afforded by the sacrifices he makes. Josh, I love you and thank you for loving me.

And thank you to my dog, Piscola, for being cute and chaotic. That said, she tried to undermine this project a number of times, destroying some books and articles I needed for the preparation of this manuscript. So reader, if you find my literature lacking and theory weak . . . it's the dog's fault.

I am endlessly grateful for my wonderful friends. I do not know how I managed to form so many meaningful relationships with such loving, brilliant, and intense people. There is the "Harlem Crew," which includes Josh, James Jones, Heba Gowed, Janice Gallagher, Nick Occhiuto, and Efrain Guerrero. They make life rich, loud, ridiculous, and joyful. I met James, whom I call my other husband, at Columbia in 2009 and we became instant friends. He has read everything I have ever written, often before anyone else. He has given invaluable feedback on every paper, chapter, and outfit. I distinctly remember us, in the earliest days, dreaming of our futures while on the 2 train into Greenwich Village. Back then, all of now seemed so far away. But slowly and gradually, dissertations were defended, jobs were accepted, weddings were celebrated, homes were made, books were written. In a profession that is known to separate partners, friends, and family by distance, I feel so lucky to have not been separated from him—whom I consider to be all three. James introduced me to two other very important people: Janice and Heba. Janice and I spent hours writing our books next to each other. The best part, of course, was not the productivity but all the breaks we got to take together. Heba is a woman whose love and loyalty are so fierce you fear for the lives of your own enemies. She has more faith in me than I have in myself. Heba's encouragement and brilliant insights have pushed me across so many difficult



finish lines (especially this one). Where would I be had she not showed up at my door years ago with a tray of chicken shawarma and bowl of hummus?

Thank you to Janani Umamaheswar, my dear friend and partner in research. I met her during the darkest time, in the bleakest place, Connecticut. At the new faculty orientation at Southern Connecticut State University, we looked into each other's eyes and knew we had made a huge mistake. Luckily, we have since moved on. Although it was a miserable two years, our marvelous friendship made it all worthwhile.

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Hold on, I have more friends to thank! Thank you, Anny Fenton, for your dark sense of humor, our Facetime work parties, and for letting me be your squatter roommate during my

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sagacity; for, had it been on a grand scale, commensurate with its importance, or even larger than it was, it would have broken down with its own weight.

Though the waters where I stood were bound on their way to meet the streams of our Northern Hemisphere, and to bring, for all the practical purposes of commerce and navigation, the mouth of the Amazon and the mouth of the Mississippi into one, and place it before our own doors; yet, from the head of navigation on one stream to the head of navigation on the other, the distance to be sailed could not be less than ten thousand miles. Vast, many, and great, doubtless, are the varieties of climates, soils, and productions within such a range. The importance to the world of settlement, cultivation, and commerce in the Valley of the Amazon cannot be over-estimated. With the climates of India, and of all the habitable portions of the earth, piled one above the other in quick succession, tillage and good husbandry here would transfer the productions of the East to this magnificent river basin, and place them within a few days' easy sail of Europe and the United States.

Only a few miles back we had first entered the famous mining district of Peru. A large portion of the silver which constitutes the circulation of the world was dug from the range of mountains upon which we are standing; and most of it came from that slope of them which is drained off into the Amazon. Is it possible for commerce and navigation up and down this majestic water-course and its beautiful tributaries to turn the flow of this silver stream from its western course to the Pacific, and conduct it with steamers down the Amazon to the United States, there to balance the stream of gold with which we are likely to be flooded from California and Australia?

Questions which I could not answer, and reflections which I could not keep back, crowded upon me. Oppressed with their weight, and the magnitude of the task before me, I turned slowly and sadly away, secretly lamenting my own want of ability, and sincerely regretting that the duty before me had not been assigned to abler and better hands.



## CHAPTER IV.

Mines of Morococha—A Yankee's house—Mountain of Puy-puy—Splendid view—Pachachaca—Lava stream—Chain bridge at Oroya—Descent into the valley of Tarma—Tarma—American physician—Customs—Dress—Religious observances—Muleteers and mules—General Otero—Farming in the Sierra—Road to Chanchamayo—Perils of travel—Gold mines of Matichacra—View of the Montaña—Fort San Ramon—Indians of Chanchamayo—Cultivation.

We arrived at Morococha at 5 p.m. This is a copper mining hacienda, belonging to some German brothers named Pflücker, of Lima, who own, also, several silver mines of the neighborhood. The copper and silver of these mountains are intimately mixed; they are both got out by smelting, though this operation, as far as regarded the silver, had been abandoned, and they were now beginning the process of extracting the silver, by the mode of grinding and washing—such as I have described at Párac—after having tried the *via humida* (or method of washing in barrels, used in Saxony) and failed.

The copper ore is calcined in the open air, in piles consisting of alternate layers of ore and coal, which burn for a month. The ore thus calcined is taken to ovens, built of brick imported from the United States, and sufficient heat is employed to melt the copper, which runs off into moulds below; the scoria being continually drawn off with long iron hoes. The copper in this state is called *exe*; it has

about fifty per cent. of pure copper, the residue being silver, iron, &c., &c. It is worth fifteen cents the pound in England, where it is refined. There is a mine of fine coal eighteen miles from the hacienda, which yields an abundant supply. It is bituminous, but hard, and of great brilliancy. The hacienda employs about one hundred hands; more are desired, but they cannot be had at this time, because it is harvest, and the Indians are gathering the corn, barley, and beans of the valleys below. A man will get out about one thousand pounds of copper ore in a day. I do not think the mines were at work during our stay; at least, I saw or heard nothing of them. I could not either get statistics concerning the yield of these mines or the cost of working them, and I thought that I noticed some reserve upon this subject. The director told me that the silver ore of this region was very rich, and spoke of specimens that yielded one thousand, and even fifteen hundred, marks to the caxon.

The mining business of the hacienda is conducted by a director, an intelligent and gentlemanly young German, named Richard Von Durfeldt; and its fiscal affairs and general business, by an administrator, a fine-looking young Spaniard, Don Jose Fco. de Lizarralde, whose kindly courtesy we shall long remember. The engineer, or machinist, is my friend and schoolmate Shepherd, who seemed to be a "Jack of all trades"—blacksmith, carpenter, watch-maker, and doctor. His room was quite a curiosity, and bespoke plainly enough the American. I never saw so many different things gathered together in so small a place: shelves of fine standard books; a dispensary for physic; all manner of tools, from the sledge-hammer and the whip-saw to the delicate instruments of the watch-maker; parts of watches lying under bell-glasses; engravings hanging around the walls, with a great chart, setting forth directions for the treatment of all manner of diseases and accidents; horse furniture, saddle-bags, boots, shoes, and every variety of garment, from the heavy woollen poncho of the man to the more delicate cotton petticoat of the woman; for my friend has a pretty young Sierra wife, who took great pleasure in talking to me about the home and relations of my "*paisano*." Shepherd's warm room and bed, with

plenty of covering, was a princely luxury in that cold climate. These things are comparative, and I had not slept under a roof but twice since I left Lima. An old Englishman from the Isle of Guernsey, named Grant, who seemed to be a sort of factotum, and knew and did everything, and who was unwearied in his kindness and attention to us, made up the sum of our pleasant acquaintances at Morococha. We had beef and mutton for dinner, with good butter and cheese; vegetables scarce; Gibbon not well; Richards very sick, and under treatment from Shepherd.

*June 3.*—We all went to see the Mountain of *Puy-puy*, said to be higher than Chimborazo. The place of view is about three miles from Morococha. We passed the openings of a copper and silver mine, and rode along a boggy country, where turf is cut for fuel. We saw many snipes, ducks, and other aquatic birds. This upset all my preconceived notions; I had no idea that I should see, at fifteen thousand feet above the level of the sea, anything that would remind me of duck-shooting in the marshes of the Rappahannock. To see the mountain, it was necessary to cross a range of hills, about seven or eight hundred feet in height. The road went up diagonally, but the ascent was the most toilsome operation I had ever undertaken. We were obliged to dismount, when about three-fourths of the way up, and lead the mules; the path was muddy and slippery, and we had to stop to blow at every half-dozen steps. Gibbon declared that this was the only occasion in which he had ever found the big spurs of the country of any service; for when he slipped and fell, as we all frequently did, he said that he should inevitably have gone to the bottom had he not dug his spurs into the soil, and so held on. I think that I suffered more than any of the party. On arriving at the top, I was fairly exhausted; I thought my heart would break from my breast with its violent agitation, and I felt, for the first time, how painful it was

"To breathe  
The difficult air of the iced mountain's top."



I soon recovered, however, and was amply repaid by the splendor of the view. The lofty cone-shaped mountain, clad in its brilliant mantle from the top even to the cylindrical base upon which it rested, rose in solitary majesty from the plain beneath us; and when the sunlight, bursting from the clouds, rested upon its summit, it was beautiful, indeed. Gibbon almost froze taking a sketch of it; and the rest of us tired ourselves nearly to death endeavoring to get a shot at a herd of shy vicuñas that were seen feeding among the distant rocks. We had a fatiguing ride, and enjoyed a late dinner and a good night's rest.

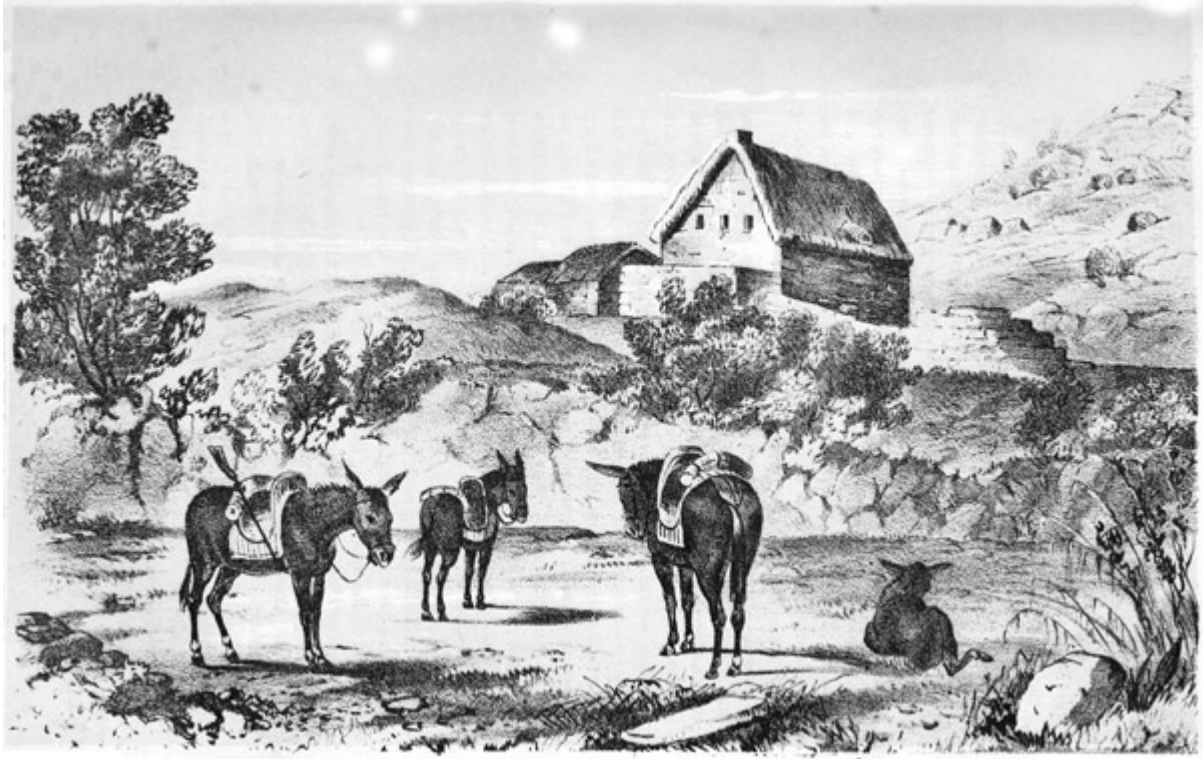
*June 4.*—We took leave of our hospitable friends, (whom I could no longer intrude our large party upon,) and started at meridian, leaving Richards too sick to travel. We rode down the "Valley of the Lakes" in about an E. N. E. direction, visiting the silver mining hacienda of Tuctu as we passed, which belongs to the establishment of Morococha. We travelled over a heavy rolling country; the southern sides of the hills clothed with verdure, and affording tolerable pasture; the northern sides bare and rocky—no trees or bushes. About nine miles from Morococha, we crossed a range of hills to the right, and entered the village of *Pachachaca*.

This is situated in a valley that comes down from Yauli. The stream of the Valley of the Lakes at this place joins with the larger and very serpentine stream of the Yauli valley. This valley has a flat and apparently level floor of half a mile in width, affording a carriage-road of two or three miles in length. There is a hacienda for smelting silver here; but having no letters, and but little time, (for the arriero begins very justly to complain that we are delaying him an unreasonable time upon the road,) I did not visit it.

Pachachaca is a small village of two hundred inhabitants. The people seem more industrious than those of the villages on the other side. There are fine crops of barley here, and we saw cabbages, onions, peaches, and eggs, in the shops. We were greater objects of curiosity in this place than we had been before. The people, I believe, took us for peddlers, and the woman from whom we got our

supper and breakfast seemed offended because we would not sell her some candles, and importuned Gibbon for the sale of his straw hat. The men wore short woollen trousers, buttoned at the knee, together with, generally, two pair of long woollen stockings. The woollen articles of clothing are woven in this neighborhood, except the ponchos, which come from Tarma. Printed cottons from Lima sell for eighteen and three-quarter cents the vara, (33 inches;) a cup and saucer of the commonest ware are held at thirty-seven and a half cents, but purchasers are few; sewing-cotton, a dollar the pound. Shoes come from Jauxa; also candles and potatoes. Fuel is the "taquia," or dried cattle manure. Gibbon and I had occasion afterwards to laugh at our fastidiousness in objecting to a mutton-chop broiled upon a coal of cow-dung.

*June 5.*—We travelled down the valley about east. At about one and a half mile we passed a very curious-looking place, where a small stream came out of a valley to the northward and westward, and spread itself over a flat table-rock, soft and calcareous. It poured over this rock in a sort of horse-shoe cataract, and then spread over an apparently convex surface of this same soft rock, about two hundred and fifty yards wide, crossing the valley down which we were travelling. This rock sounded hollow under the feet of the mules, and I feared we should break through at every instant. I am confident it was but a thin crust; and, indeed, after crossing it, we observed a clear stream of water issuing from beneath it, and flowing into the road on the farther side. We saw another such place a little lower down, only the stream tumbled, in a variety of colored streaks, principally white, like salt, over the metallic-looking rock, into the rivulet below. I presume there must have been some volcano near here, and that this rock is lava, for it had all the appearance of having once been liquid.

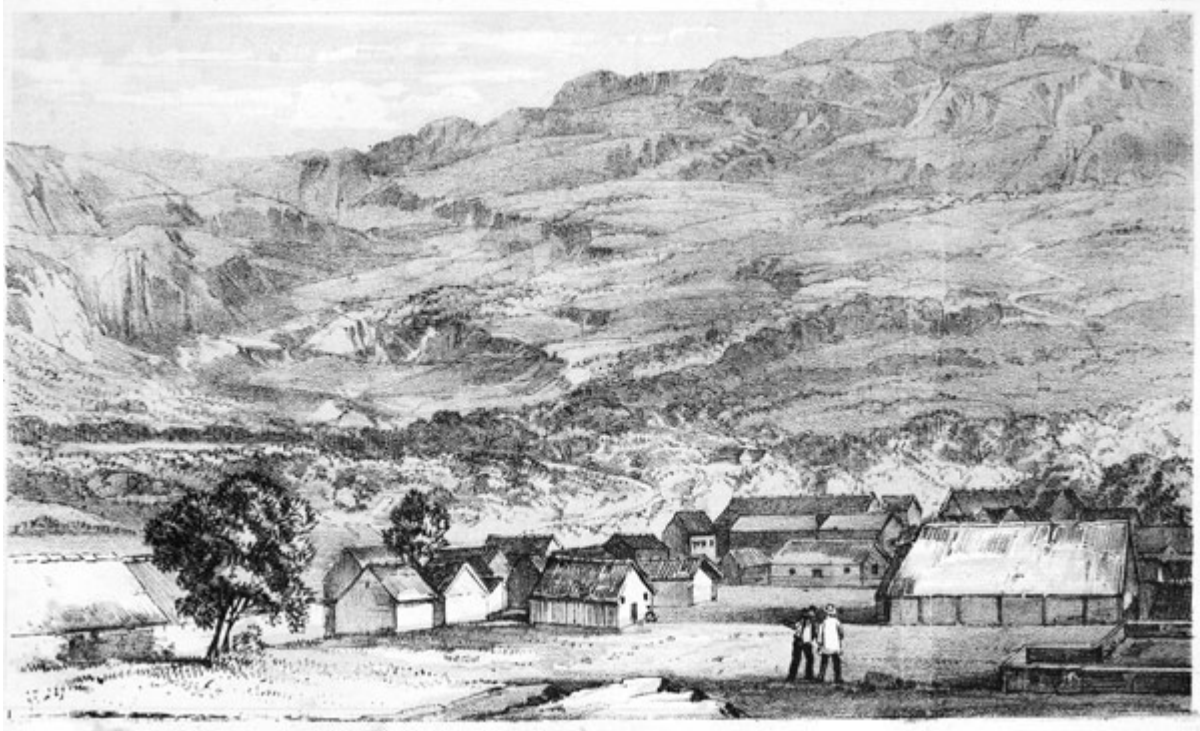


Lt. Gibbon del.

Wagner & M<sup>c</sup>Guigan's Lith. Phila.

HACIENDA DE MAYOC.

PL. 3.



Lt. Gibbon del.

Wagner & M<sup>c</sup>Guigan's Lith. Phila.

**SAN MATEO.**

Pl. 4.



Lt. Gibbon del.

Wagner & M<sup>c</sup>Guigan's Lith. Phila.

CORDILLERA FROM THE HIGHEST POINT OF THE ROUTE.

PL. 5.



Lt. Gibbon del.

Wagner & M<sup>c</sup>Guigan's Lith. Phila.

### MOUNT PUYPUY.

Pl. 6.

The valley about two miles from Pachachaca is cut across by rocky hills. Here we turned to the northward and eastward. The country at first offered some pasturage, but became more barren as we advanced, only showing, now and then, some patches of barley. We travelled till noon on the left bank of the Yauli stream, when we crossed it by a natural bridge, at a little village of a few huts, called Saco. At half-past two, after a ride over a stony and dusty plain, bordered on each side by rocky mountains, we arrived at the bridge of Oroya. This is a chain suspension bridge, of about fifty yards in length, and two and a half in breadth, flung over the river of Jauxa, which is a tributary of the Ucayali. The Yauli stream, into which emptied the stream from the lakes at Morococha, joins this river here, and this is the connexion that I spoke of between those lakes, near the very summit of the Andes and the Atlantic ocean.

The bridge consisted of four chains, of about a quarter of an inch diameter, stretched horizontally across the river from strong stone-work on each side. These are interlaced with thongs of hide; sticks of about one and a half inch in diameter are laid across them and lashed down, forming a floor. Two other chains are stretched across about four feet above these, and connected with them by thongs of hide; these serve for balustrades, and would prevent a mule from jumping off. The bridge was about fifty feet above the water when we passed. It seemed very light, and rocked and swayed under the motion of the mules in crossing it. The heavy cargoes are taken off and carried over on the shoulders of the bridge-keeper and his assistants. The toll is twelve and a half cents the mule; and the same, the cargo. The bridge-ward seemed astonished, and somewhat annoyed, when I told him that one of the cargoes, which he left on the mule, was the heaviest I had, being a box filled with bags of shot, balls, and powder, together with the specimens of ore and rocks we had collected.

The river at this place turns from its southern course and runs to the eastward, by the village of Oroya, where we camped. This village contains about one hundred inhabitants, though we saw only five or six men; most of the male inhabitants being away to the harvest on the plains above. The women seemed nearly all to be employed in spinning wool; holding the bundle of wool in the left hand and spinning it out by a hanging broach. Very few of them spoke Spanish, but a corrupt *Quichua*, or language of the Incas. We bought barley straw for the mules, and got a beef chupe, with eggs and roasted potatoes, for ourselves. We saw some small trees within the deserted enclosures where houses had been, bearing a very fragrant flower, something resembling the heliotrope, but much larger, and tinged with a reddish color. We also saw flocks of sheep, but got no mutton for dinner.

*June 6.*—Got under way at 9 a. m., steering N. N. E., and making a considerable ascent for about two miles. We then rode over a plain, with rolling hills on each side, covered with a short grass,

giving pasturage to large flocks of sheep and some cows. The road then rose again, taking our column of mercury in the barometer out of sight, till half-past eleven, when we stood at the head of a ravine leading down to the valley of Tarma. The height of this spot above the level of the sea was eleven thousand two hundred and seventy feet. We rode down this ravine, north, for three-quarters of an hour, and at an angle to the horizon of full thirty degrees. The road was filled with fragments of white calcareous rock, and the rocky hills on each side were pierced with many a cavern. When nearly at the foot, the plants and flowers familiar to us on the other side began to make their appearance, and in such quick succession, that it seemed that an hour's ride carried us over many a mile of the tedious ascent to the westward of the mountains. First appeared the hardy little flowers of the heights above San Mateo; then, the barley; the alfalfa; the Indian corn; beans; turnips; shrubs, becoming bushes; bushes, trees; flowers growing larger and gayer in their colors, (yellow predominating,) till the pretty little city of Tarma, embosomed among the hills, and enveloped in its covering of willows and fruit trees, with its long lawns of alfalfa (the greenest of grasses) stretching out in front, broke upon our view. The ride of to-day was a long and tiresome one, being mostly a bone-shaking descent; and we hailed with pleasure the sight of the little town as a resting place, after the tedious passage of the Cordillera, and felt that one of the inconveniences and perils of the expedition was safely and happily passed.

We arrived at 4 p. m., and rode straight to the house of a gentleman, Don Lorenzo Burgos, to whom I brought a letter of introduction from friend Shepherd, of Morococha; which letter contained the modest request that Don Lorenzo should place his house at my disposal. This he acceded to without hesitation, removing his sick wife, in spite of remonstrance, into another room, and giving us his hall for our baggage, and his chamber for our sleeping room. This I would not have acceded to, except that this is not Don Lorenzo's place of residence, but a new house which he is constructing here, and which he is only staying at for a few days till



his wife is able to travel to their regular place of residence. There is no public house in the town, and it is customary to take travellers in. When I (next morning) presented a letter of introduction from the Bishop of Eretria to the Cura of Tarma, his first question was, "Where are you lodged?" And when I told him, he seemed annoyed, and said that I had not treated him properly in not coming to his house. Don Lorenzo gave us some dinner, and we slept well after the fatigues of the day.

Tarma, a town of some seven thousand inhabitants, belonging to the province of *Pasco* and department of *Junin*, is beautifully situated in an amphitheatre of mountains, which are clothed nearly to the top with waving fields of barley. The valley in front, about half a mile wide, and two miles long, appears level, and is covered with the greenest and richest pasturage. Its borders are fringed with fruit trees; and the stream which waters it plunges, in a beautiful little cataract, of some thirty feet in height, over a ledge of rocks at the farther end. Its climate is delicious; and it is the resort of sickly people from Lima, and the cold and inclement mining districts, who find comfort and restoration in its pure atmosphere and mild and equable temperature. I was told, although the district contains nearly twenty thousand inhabitants, and its villages are close together, and easily accessible, that it could not, of itself, support a physician, and that the government had to appropriate the tax on spirits, and the surplus revenue of the bridge at Oroya, to this purpose. A young American physician, recently established in Tarma, gave me this account; but said that not even this had been sufficient to keep one here; that the custom had, therefore, fallen into desuetude, and that he was then engaged, with hope of success, in endeavoring to have this appropriation renewed and paid over to him.

I cannot vouch for this story. It has an apocryphal sound to me. I only know that it is a very healthy place, and that my medical friend is a person of repute there. When I proposed to carry him off with me, the ladies of my acquaintance raised a great outcry, and

declared that they could not part with their *Medico*. I think there is no apothecary's shop in Tarma, for I supplied the Doctor with some medicines, those which he had brought from Lima being nearly exhausted. I am satisfied, though there are so few diseases, that a good-looking young graduate of medicine, who would go there with money enough to buy him a horse, might readily marry a pretty girl of influential family, and soon get a practice that would enrich him in ten years. I afterwards knew a young American at Cerro Pasco, who, though not a graduate, and I believe scarcely a student of medicine, was in high repute as a doctor, and had as much practice as he could attend to; but who, like several of our countrymen whom I met abroad, was dissipated and reckless, and, as he himself expressed it, "slept with the pump."

The houses of Tarma are built of adobe; and the better sort are whitewashed within and without; floored with gypsum and tiled. The wood and iron work is of the rudest possible description, although the former, from the Montaña of Chanchamayo, is pretty and good. The doors of the house we are living in very much resemble "birds-eye maple." Some of the houses are partially papered, and carpeted with common Scotch carpeting. Most of them have *patios*, or enclosed squares, within, and some of them flat roofs, with a parapet around them, where maize, peas, beans, and such things, are placed in the sun to dry.

Sunday is the great market-day, and the market-place is filled with country people, who come in to sell their manufactures of ponchos, blankets, shoes, hats, (made of the vicuña wool,) &c., and to buy coca, cotton goods, and *agua diente*, as well as to attend mass and get drunk. It is quite a busy and animated scene. The men are generally dressed in tall straw hats, ponchos, breeches, buttoned at the knee, and long woollen stockings; the women, in a blue woollen skirt, tied around the waist, and open in front, to show a white cotton petticoat, the shoulders covered with a mantle consisting of two or three yards of gay-colored plush, called "*Bayeta de Castilla*," or Spanish baize. Everything foreign in this country is

called "*de Castilla*," (of Castile;) as in Brazil, it is called "*da Rainha*," (of the Queen.) The skirt of a lady of higher quality consists of a colored print, or mousseline. She rarely, unless dressed for company, takes the trouble to put on the body of her dress, which hangs down behind, and is covered with a gay shawl, passed around the bust, with the end thrown gracefully over the left shoulder. The hair, particularly on Sundays, is in perfect order; parted in the middle, and hanging down in two plaits behind. It is surmounted by a very neat, low-crowned straw-hat, the crown being nearly covered with a broad ribbon; and she is always "*bien calzada*," (well shod.) The women are generally large and well developed; not very pretty, but with amiable, frank, and agreeable manners; they have, almost invariably, a pleasant smile, with an open and engaging expression of countenance.

Religion flourishes in Tarma; and the Cura seems to have a busy time of it; though it is said he is cheated of half his rights in the way of marriage fees. I think that no day passed while we were here that there was not a "*fiesta*" of the church; for, although there are not more than twenty-five or thirty feast days in the year insisted upon by the church and the government, yet any piously-disposed person may get up one when he pleases. The manner seems to be this: A person, either from religious motives or ostentation, during or after Divine service in the church, approaches the altar, and, kissing one of its appendages, (I forget which,) proclaims his intention of becoming mayordomo or superintendent of such and such a *fiesta*—generally that of the Saint after whom he is named, and thereupon receives the benediction of the priest. This binds him and his heirs to all the expenses of the celebration, which, in the great functions in Lima, may be set down at no small matter—the heaviest item being the lighting of one of those large churches from floor to dome with wax. The jewels and other adornments of the images borne in procession are generally borrowed from the devout Señoras of the higher and richer class; but I am told that many a person impoverishes his family for years by paying the expenses of one of these festivals.

The *fiestas* in Tarma are generally celebrated with music, ringing of bells, firing of rockets, and dances of Indians. A dozen vagabonds are dressed in what is supposed to be the costume of the ancient Indians. This consists of a red blanket hanging from one shoulder, and a white one from the other, reaching nearly to the knee, and girded around the waist; the usual short blue breeches, with a white fringe at the knee; stockings of an indifferent color, and shoes or sandals of raw-hide, gathered over the toes with a draw-string, and tied around the ankles. The head-dress is a low crowned, broad-brimmed round hat, made of wool, and surrounded with a circlet of dyed feathers of the ostrich. Thus costumed, the party march through the streets, and stop every now and then to execute a sort of dance to the melancholy and monotonous music of a reed pipe, accompanied by a rude flat drum—both in the hands of the same performer. Each man has a stick or club, of hard wood, and a very small wooden or hide shield, which he strikes with the club at certain periods of the dance, making a low clattering in time with the music. They have also small bells, called "cascabeles," attached to the knees and feet, which jingle in the dance. They and their company of Indians and Mestizos smell very badly on a near approach. Connected with this there is a great deal of riot and drunkenness; and I felt annoyed that the church should patronize and encourage so demoralizing a procedure. The secular clergy of Peru, with a few honorable exceptions, have not a high character, if one is to believe the stories told of them by their own countrymen; and I had occasion to observe that the educated young men, as well of Chili as of Peru, generally spoke of them in terms of great contempt. I judge that the case is different with the clergy of the monastic orders, particularly the missionaries. Those I met with were evidently men of high character; and to their zeal, energy, and ability, Peru owes the conquest of by far the largest and richest part of the republic. It happens, unfortunately for the Peruvian character, that nearly all of these are foreigners—generally Spaniards and Italians.

*June 7.*—I suffered all day with violent pain in the head and limbs, from the ride of yesterday. These Peruvian saddles, though

good for the beasts, and for riding up and down hill, stretch the legs so far apart as for a long time to give the unaccustomed rider severe pains in the muscles of the thighs; and I had to ride a large portion of the distance with my leg over the pommel, like a lady.

We paid off and parted with the arriero, Pablo Luis Arredondo. I did not find him so great a rascal as I expected; for, except the disposition to get all out of me he could, (which was very natural,) and an occasional growl, (which was also to be expected,) I had no reason to be dissatisfied with Luis. Ijurra was always quarrelling with him; but I think Ijurra has the fault of his countrymen generally, and wants the temper and patience necessary to manage ignorant people. By soft words and some bribery, I got along well enough with the old fellow; and he loaded his mules beyond their usual cargoes, and drove them along very well. I was frequently astonished at the difficulties they surmounted, loaded as they were. The usual load is two hundred and sixty pounds; and these animals of ours, with, I am sure, in some instances, a heavier load, and of a most incongruous and heterogeneous description, ascended hills and descended valleys which one would scarcely think an unloaded mule could travel over. Our riding mules were perfect treasures. Sure-footed, steady, strong, and patient, they bore us along easily and with comfort; and Gibbon says that he will part with his with tears, when we are compelled to give them up and take to the boats.

The market at Tarma is tolerably good, though the meat is badly butchered. Beef costs six cents a pound; a small leg of mutton, eighteen and three-quarter cents; good potatoes, nearly a dollar a bushel; cauliflowers, three small heads for twelve and a half cents; oranges, pineapples, and peaches are abundant and cheap, but not good; bread, very good, is baked in small loaves, by a Frenchman, four for twelve and a half cents; flour comes from Jauxa; eggs are ten cents a dozen.

We had a visit from the Cura, and went to see the sub prefect of the province, a gentleman named Mier, who promised me such assistance as I needed in my visit to Chanchamayo. Both of these

gentlemen earnestly deprecated the idea of trusting myself and party among the "*Chunchos*" Indians on the other side of the river Chanchamayo, saying that they were very hostile to the whites, and dangerous. The Cura promised to look out for a servant for us. We had visits, also, from several gentlemen of the town; among them a Señor Cardenas, who gave me a copy of the memorial of Urrutia. All seemed much interested in my expedition to Chanchamayo, and hoped a favorable report.

*June 11.*—We rode about a league down the valley which leads to Chanchamayo, to the farm of General Otero, to whom we brought letters from Mr. Prevost, and Pasquel, bishop of Eretrea. We found this farm a different sort of affair from anything we had hitherto seen in this way in our travels. This is in a high state of cultivation, well enclosed with mud walls, and in beautiful order. The General—a good looking, farmer-like old gentleman—met us with great cordiality, and showed us over the premises. He has a very large house, with all the necessary offices attached, which he built himself. Indeed, he said he had made the farm; for when he purchased it, it was a stony and desolate place, and he had expended much time, labor, and money on it. There were two gardens: one for vegetables and fruit, and one for flowers. They were both in fine order. The fruits were peaches of various kinds, apples, strawberries, almonds, and some few grapes. The flowers were principally roses, pinks, pansies, jessamines, and geraniums. There were a few exotics, under bell-glasses. Both fruit and flowers were of rather indifferent quality, but much better than one would expect to see in so elevated and cold a situation. The nights here, particularly in the early morning, are quite cold.

This is the harvest season, and the General was gathering his crop of maize. About twenty peons or laborers were bringing it in from the fields, and throwing it down in piles in a large court-yard, while boys and women were engaged in "*shucking*" it. In one corner of the square, under a snug little shed attached to one of the barns, with stone seats around it, sat the General's three daughters,

sewing, and probably superintending the "shucking." They were fair, sweet-looking girls. The General had a tray of glasses, with some *Italia* (a cordial made of a Muscatel grape that grows in the province of Ica, and hence called Ica brandy) and paper cigars, brought out for us; and the whole concern had a home look that was quite pleasing.

I cannot give a good idea of farming in this country, for want of information of the value of land; this depending so entirely on its situation and condition. The mountain sides are so steep, and the valleys so rocky, that I imagine there is no great deal of cultivable land in all this district, and therefore it is probably high. According to Gen. Otero, land here is measured by "tongos," which is a square of thirty-three varas. (A vara is thirty-three English inches.) Three tongos make a "yuntada," or as much as it is calculated that a yoke of oxen can plough in a day. About half an arroba, or twelve and a half pounds of seed, is planted to the tongo. In maize, the yield is between forty-five and fifty for one. Wheat yields about forty for one, but is so subject to the rust as to be an uncertain crop, and is therefore little cultivated. The price of maize is five dollars the *carga* or mule-load, of two hundred and sixty pounds. From these data it appears, then, that an acre will yield about forty-three bushels, which is worth one dollar and twenty-five cents the bushel. Quantities of barley are cultivated on the mountain sides, but the grain does not come to perfection, and it is generally cut green for fodder; though the General says that it is not good for that, the straw being coarse and hard. Potatoes are a good crop; they are worth now in Tarma one dollar and fifty cents the hundred pounds, and in times of scarcity have been known to run up as high as seven dollars. One of the principal articles of food of the laborers of this country is "*cancha*," or toasted maize. They mix a little lime with the grains before putting them in the hot ashes, which makes them whiter and improves their flavor. It is really very sweet and good, and I liked it better than the green corn roasted, which is such a favorite dish with us. *Chicha*, a fermented liquor, is also made from Indian corn, and much drunk by all classes. The General gave us

some that he had prepared and bottled himself. It was very good, rose-colored, and sparkled like Champagne. He told us that our corn, which he called "*mais morocha*," was not so good as this for making either cancha or chicha; this being softer and sweeter.

We visited the stables, which were very clean, and paved, and contained some ten or fifteen fine-looking young horses; and there were thirty or forty more, mares and colts, in a spacious corral or enclosure near, with an American farrier from Tarma attending to some of them. There is also a neat little chapel occupying a corner of the "patio," with the inscription over the door, "*Domus mea, domus orationis est.*" It was neatly papered and carpeted, and had colored prints of the "Stations" hung around the walls. The altar-piece was a figure of our Lady of Mercy, with the figures of St. Francis and St. Peter on each side; these Saints being the patrons of the general and his lady, Don Francisco and Doña Pedronilla. The General's manners were exceedingly courteous and affable; and he possessed that suavity and gentleness of bearing that seems to me always to characterize the military man of high rank when in retirement. The whole establishment reminded me of one of our best kept Virginia farms, where the owner had inherited the homestead of his father, and was in easy circumstances.

*June 12.*—Dined with our countryman, Dr. Buckingham, and a couple of young ladies, one of whom seemed to be his housekeeper. The dinner was after the Peruvian fashion: first, a sort of thick soup; then, roasted ribs of mutton, served with salad; this succeeded by a dish of stewed Guinea pigs, mixed with a variety of vegetables, and which would have been very good but for the addition of a quantity of *aji*, or red pepper, which made it unendurable to the unaccustomed palate; winding up with the invariable chupe, and the invariable dessert of *dulces*, or sweetmeats. A Limenian never thinks of taking water during dinner, and always eats sweetmeats after dinner, that he may then safely take water; so that "*Tomar dulces, para beber agua*" is a sort of dietetic proverb with them.



*June 13.*—Rode out on the Oroya road, with the intention of visiting a cave, or what is reported to be a subterraneous passage made by the Incas, and reaching as far as Jauxa, twenty-seven miles; but, after riding about five miles, we determined that we were too late to explore the cave for that day, and meeting Richards, from Morococha, we turned back. I suspect that this cave is nothing more than the cañon, or opening, of some long-deserted mine.

*June 14.*—Rode out to the southward, in the direction of Jauxa. This valley, which rises very rapidly, is thickly settled, and well cultivated. Road bad. Another valley debouches from this, about four miles above Tarma, to the southward and eastward, leading to the Montaña of Vitoc.

*June 15.*—Had a long visit from General Otero. The vivacious old gentleman discoursed very pleasantly. He said that it was difficult to get at the population of the town proper, the census being generally taken of the Doctrina, or district over which the Cura had religious jurisdiction; that this was about ten or twelve thousand, of which one-twelfth part were pure white, about one-half Mestizos, (descendants of whites and Indians,) and the balance Indians, there being very few negroes. I asked him to account for the number of blind people we had noticed in the streets. He said that most of the blind people came from Jauxa, in which country much wheat and barley are produced; that they sifted these grains, and got rid of the chaff by throwing them up in the air, and he believed that the blindness arose from the irritation caused by the chaff and barbs flying into the eyes of the people who sifted.

*He* also said that he thought I should not attempt to cross the Chanchamayo amongst the Indians, for that I would not be able to defend myself against their attacks; but thought that, if I wished to descend the Ucayali, I had better take a more southern tributary, called the Pangoa; (this is Biedma's route, by Andamarca and Sonomora;) that there the Indians were not so much irritated against the whites, and that the river was known to be navigable for canoes, for he himself had known a friar of Ocopa who, in 1817, had

descended it for the conversion of the Indians of the Ucayali, and had afterwards established a missionary station at Andamarca, where the Indians came at stated periods to be baptized and receive presents of hatchets, knives, beads, &c., but that, on the occasion of the war in 1824, the supplies had been stopped, and the Indians would come no more. He, as did the sub-prefect, liked my idea of ascending from the mouth of the Ucayali, with a properly-equipped Indian force, and looking into the navigability of the *Perené* and Chanchamayo that way.

The latitude of Tarma, by mean of Mer. altitudes of  $\alpha$  and  $\beta$  *Centauri*, is  $11^{\circ} 25' 05''$  S.

*June 16.*—We left Tarma for the Chanchamayo. This is the first time I have applied to authority for the means of locomotion. I did it inadvertently, and was sorry for it; for, though I would probably have been cheated in the price, yet I should not have been the cause of injustice and oppression. I had said to the sub-prefect, a few days before, that I wanted the means of transportation for some baggage to Chanchamayo, which he promised to furnish me. Yesterday I went to ask for it for to-day, and he referred me to the governor of the district, who was present, and who told me that he would have what I required—viz: two asses and a saddle mule, with two peons—ready by to-morrow morning. Accordingly, this morning he sent for me, and presented to me the owner of the mule, the owner of the asses, and the two peons. The wages of these were to be four reals, or half a dollar, a day; and I paid each three dollars in advance. To the governor I paid a dollar for each ass, and two for the mule, with the understanding that I was to pay as much more on my return. The peons were then lectured on their duties, and sent round to my house with an escort of half a dozen *alguaziles*, or constables, armed with sticks, to prevent their escaping or getting drunk before the start. The asses and mules were also sent round under a similar guard, so that my patio seemed filled with a clamorous multitude, who created such a confusion that I had to turn out all but my own people. I ordered these to load up; but they said that the owners of

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